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NATURAL HISTORY NOTES ON SOME BEAUFORT, N. C., FISHES,—1912.

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The following notes are in part based on fishes collected during a brief visit to the Beaufort Laboratory of the United States Bureau of Fisheries in the closing days of May, 1912; in part on collections made by Mr. Russell J. Coles of Danville, Va., at Cape Lookout during July and August of the same year, the notes concerning which he has been so kind as to put in my hands; and in part from miscellaneous sources.*

These Notes for 1912 are published in continuation of similar ones made in 1909 and in 1910–11 (Gudger 1910, 1912, 1912a, 1912b,), and it is hoped may not be devoid of value to students of ichthyology.

Elasmobranchii.

Carcharhinus lamia (Rafinesque). (?)

CUB SHARK; REQUIN; LAMIA.

On July 9 Coles captured in the bight of Cape Lookout a female shark, 8½ feet long and having a circumference of 4½ feet, which he provisionally identified as *Carcharhinus lamia*. He has twice before, once at the Cape and once at Beaufort, taken sharks which he thinks to be identical with this one. If this provisional identification is corroborated, another new shark will be added to the fish fauna of our coast through the work of Mr. Coles. In this connection the conjecture may be offered that there are probably to be found at the Cape other sharks which have never yet been noted as occurring in our waters.

* I must again express my great indebtedness to Dr. H. M. Smith's Fishes of North Carolina, a work invaluable to the students of the ichthyological fauna of North Carolina.

Carcharias littoralis (Mitchill).

SAND-BAR SHARK.

This shark, not very common at the Cape, is rare in the Sounds, so much so that although I have sought for it, I have never yet seen a specimen to know it as such. Coles on July 9 took a male 7 feet 6 inches long at the Cape. He states that he has occasionally taken them there with the lance. The above specimen does not seem to have been full grown, for according to Smith (1907) two 9-foot specimens were collected by H. H. Brimley at Beaufort in 1900, and in April, 1904, another of about the same size was taken at the Cape.

Squalus acanthias Linnæus.

PICKED DOG-FISH; "BONE SHARK."

The third recorded taking of this shark in the waters of North Carolina is by Mr. Coles, who hooked a specimen in 6 fathoms of water off the rocks of New River Inlet in January, 1912. For previous records see my "Notes No. I for 1910–11." The fish above referred to was presented to the United States National Museum.

Rhinobatus lentiginosus Garman.

GUITAR-FISH.

While it is known that the guitar-fish is found in the Beaufort region, captures of it are very unusual, the only record at the laboratory being of the taking of a 2-foot specimen in the inner harbor on July 6, 1899. However, on July 23, 1912, Coles took 2 female specimens each 30 inches long at the Cape. One was presented to the American Museum of Natural History, and the other to the British Museum. Two days later he took a third, a male 17½ inches long, which is now on deposit in the United States National Museum. Coles states that these are the first that he has ever taken on our coast, and that they were entirely unknown to the fishermen living at the Cape. In his paper (1913) he notes that this ray is viviparous.

Raja lævis Mitchill.

BARNDOOR SKATE; SMOOTH SKATE; WINTER SKATE.

During the later part of December, 1912, Coles took at New River Inlet a large female specimen of this skate measuring 34½ inches wide, 31 inches long (disk only), with 19½-inch tail—total length 48 inches. This specimen, which is now on deposit in the American Museum, was foul-hooked in the edge of the pectoral, but was fortunately secured. Not so however a male of about the same size, which, having swallowed the lead attached to the line (Mr. Coles was bottom-fishing at the time), was brought to the surface but cut the line and got away.

Smith (1907) says that this ray attains a length of 4 feet (Coles' specimen measured exactly 4 feet over all), and that it is not uncommon on our coast. It may have been more abundant in former times, or it may be a winter visitor, but in 9 summers' seinings in Beaufort waters I have

never taken one nor heard of one being captured. Furthermore, Coles states that in 11 years' fishing on our coast this is his first capture.

Narcine brasiliensis (Olfers).

NUMB-FISH; "SHOCK-FISH."

In 1909 Coles added this fish to our ichthyological fauna by taking 2 specimens at Cape Lookout. In 1910 he captured 11 others, and in 1911 4 more. During the present year he obtained 16 specimens, 13 in the bight at Cape Lookout and 3 on the coast some miles south. One of these makes for us a new and unusual record for size, being 17¾ inches in total length and having a disk 9½ inches wide. Among these specimens were a number of pregnant females whose uteri with the contained eggs were sent to the American Museum.

Dasytis say (LeSueur).

STING-RAY; STINGAREE.

Although very common I took but one specimen, a female, during my brief stay at Beaufort. Its right ovary and right uterus were non-functional. The left ovary was filled with a number of eggs 4–5 mm. in diameter. The left uterus was much swollen, and internally was densely lined with villi the interstices of the bases of which were filled with a yellow buttery material. This uterus contained 2 rather far advanced embryos whose attached yolk bags were reduced to about the size of .44-caliber bullets.

The asymmetry of the reproductive organs of this specimen accord with what I have previously noted (1912) on others of this ray. It seems that the organs on the left side only are functional in rays of the genus *Dasyatis*. So I have found in dozen of specimens young and old of *D. say* examined at Beaufort, and in 7 specimens (all adult) of *D. hastata* examined during the summer of 1912 on the outermost of the Florida Keys. Wood-Mason and Alcock (1892) found the like on dissection of 2 females of *Trygon* (*Dasyatis*) *walga*. In speaking of *T.* (*D.*) *bleekeri*, Alcock writes (1892) of three specimens "* * * left side only pregnant; in all the pregnant rays that I have since dissected, where only one oviduct is pregnant it is always the left." Redeke (1898) found the same state of things in *Trygon pastinaca*, and he reports that according to Schmidt the same is true of *T. violaceus* (reference not verified). And later still Lönnberg (1902), on dissecting a female *Dasybatus margarita* from the west coast of Africa, found the left uterus only pregnant.

On this point Hill (1851), the earliest writer on these subjects known to me, says, "Some of the viviparous Cartilaginous Fishes are fertile only on one side generally the right." This I have found to be true only of the ovaries of the nurse shark, *Ginglymostoma cirratum*, and of a large tiger shark, *Galeocerdo tigrinus*, taken in Key West Harbor in July, 1912. However, I have found that in immature bonnet-head sharks, *Sphyrna tiburo* the right ovary is larger than the left. Redeke (1898) says that this is true of the right ovary of *Scyllium*, *Pristiurus*, *Mustelus*, *Galeus*, *Carcharias*, and *Sphyrna*.

Pteroplatea maclura (LeSueur.)

BUTTERFLY RAY; SAND SKATE.

This ray, like the preceding, is very abundant at Beaufort. In 1912, I took 4 female specimens in Newport River, all of about the same size, viz., 26 to 27 inches wide and 16 or 17 inches long to tip of ventrals. All had the reproductive organs on both sides functional, but the left ovary was in all cases better developed and the left uterus invariably contained more eggs than the one on the right. In all specimens a shell-gland could be found just anterior to the uterine enlargement. The uteri were on the interior closely crowded with richly vascularized villi, and were generally filled with a milky secretion.

Careful examination of the uterine eggs revealed some interesting structures. The left uterus of ray number I contained 3 yellow yolks enveloped in very thin diaphanous coverings but carrying neither blastoderms nor embryos. The middle one of the eggs had over one end only a fragment of egg shell. The most anterior egg had at its front end a lobe about one-third as large as the main yolk mass. Around the isthmus joining these was a mass of delicate yellowish material, probably a piece of shell, and this had possibly caused a constriction of the yolk, although the main portion of the yolk was of itself as large as either of the other eggs. The right uterus contained an empty egg shell larger at one end and having the other somewhat folded and rolled up.

Ray number II had a left ovary whose volume was about 25 per cent greater than the right. The right uterus contained but one egg, which was enveloped in a delicate transparent shell of light straw color. On the soft light yellow yolk neither blastoderm nor embryo could be found. The left uterus, which was somewhat larger than the right, also contained but one shell, which however enclosed 2 yolks, each the size of that in the right uterus. On one of these yolks was found a very small embryo in the selachian stage. This is the first case of polyembryony (if it may so be called) which I have ever met with in my dissections of sharks and rays. However, such have been previously reported by others.

Home (1810) found a single egg shell of *Squalus acanthias* to contain 3 yolks. Haacke (1885) has at some length described polyembryony in 2 Australian rays, *Trygonorhina fasciata* and *Rhinobatus vincentianus*. Redeke (1898) has figured a polyembryonal capsule for *Trygon pastinaca*. Joseph (1906) examined an egg-shell of *Scyllium* having in it 2 yolks flattened at the point of contact. However, most remarkable of all is Swenander's (1907) account of finding in the uterus of the common northern mackerel shark, *Lamna cornubica*, "* * * above 40 pieces of peculiar structure stuck together, which on close examination were found to be egg-masses enclosed in a common shell." While Vayssiere (1909) 2 years later obtained, from the left oviduct of a shark of the same species, a large egg-shell 34 x 92 mm., which on being opened was found to contain 2 yolks each having on it an embryo 15–16 mm. long and perfectly normal in all respects.

The reproductive organs of the third butterfly ray were functional on

both sides but better developed on the left. The right uterus had one egg, the left 2. The right egg and one of the left ones had perfect shells, with chalaza-like twisted and crumpled ends enclosing yolks with embryos in the early selachian stage. The other egg in the left uterus had the shelly material equatorially girdling and somewhat constricting it.

In the fourth ray both uteri were pregnant, but the left was twice as large as the right. Dissection being impossible at the time, both uteri were preserved but have since unfortunately been lost.

From all this data it seems not improbable that *Pteroplatea maclura* is intermediate in stage between those rays having perfect bilaterality of the reproductive organs, and those like *Dasyatis say* having complete asymmetry in favor of the left side only.

Aetobatus narinari (Euphrasen).

SPOTTED STING-RAY.

The specimens of this ray taken by Coles at Cape Lookout during the past summer are chiefly remarkable for their great size and for their beautiful markings. Three giants were taken: the first, a female, was 9 feet 6 inches long over all, 7 feet 2 inches wide, and 18 inches thick; the second, a male, measured 10 feet over all, 6 feet 11 inches wide, and 17 inches thick; the third and largest, a female, was 12 feet in extreme length, 6 feet 11 inches wide, 20 inches thick, and was estimated to have weighed approximately 500 pounds.

Mr. Coles was fortunate in getting some excellent photographs of the second of the rays noted in the preceding paragraph, and these have been finely reproduced in his 1913 paper. These rays were beautifully marked, the hinder half of the body of each being covered not with white spots but with white ocelli with dark centers.

In Mr. Coles' 1910 paper it is noted that the mother gives birth to the young while leaping in the air. None of these young however were secured. In 1912 Coles had the good fortune to catch a large female (number 2 above) which gave birth to 4 young which were evidently nearing the time when they would have naturally been set free. In the photographs of the just spawned young the heads are very light in color, but in that made of a young one preserved in formalin the head is as dark as the body and the spots are few and rather indefinite. This change in the ground color is due to the action of the preserving fluid. One of these young was 286 mm. wide, 171 mm. long, and had a very slender tail 634 mm. long. These are the first and only figures which have ever been made of the young of *Aëtobatus narinari*.

Myliobatis freminvillei Le Sueur.

EAGLE RAY.

Dr. Smith (1907) gives but brief data for this ray, noting that it is apparently not common in North Carolina waters. At Cape Lookout in 1909 Coles captured a female which gave premature birth to six young. In 1912 (Coles 1913) he took 11 specimens, one being a female with 6 young. One of these young was 203 mm. wide, 124 mm. long, with a

tail measuring 335 mm. Viviparity in this ray is effected by a uterus lined with villi presumably secreting a milk for the nourishment of the young.

Rhinoptera bonasus (Mitchill).

COW-NOSED RAY; WHIP-RAY; "WHIPPAREE."

Two specimens of this interesting ray were collected by me in Newport River. The first, which was about 26–28 inches wide, was a male in full breeding condition possessed of the most enormous testis I have ever seen in any ray. Both lobes reached forward clear to the anterior portion of the stomach, extending nearly from one end of the abdominal cavity to the other.

The other specimen was a female, 28 inches wide, 18 inches long to the tips of the pelvic fins, and had a tail 23½ inches in length. The oviducts were non-fertile and almost indistinguishable. The large ovaries presented 2 interesting structures. They were paired but the dorsal side of the left one only contained a large number of smallish eggs, was "warty" with them as my notes put it. In the hinder part of the abdomen was found a median unpaired lobe of the ovary attached to the median line but seeming to fall to the left in order to lie at ease.

This ray is not an unusual one at Beaufort. Both these specimens, like others previously examined by me, had the intestine and spiral gut filled with clams without a trace of shell.

Mobula olfersi (Müller & Henle).

SMALL DEVIL-FISH.

As on preceding summers, Coles was very successful in taking these interesting rays, capturing no fewer than 11. The periodicity of migration of these rays is very interesting. At the Cape in 1910 Coles took 9 between July 6 and 9; in 1911, 14 between July 6 and 29; and in 1912, 7 between July 7 and 29. He thinks that Cape Hatteras is their northern limit of migration. One of the 1912 specimens contained an embryo about 2 inches in diameter, but since this was spawned in the seine it was unfortunately lost.

GANOIDEI.

Acipenser oxyrhynchus Mitchill.

SHARP-NOSED STURGEON.

There have been reports of the occasional capture of sturgeons in the Beaufort region, but such are rare. In 10 seasons' collecting and study of fishes there I have never until the present summer caught any or heard of any being taken. On May 24 I took 2 young specimens at Rockfish Rock in the Narrows of Newport River. Here, where the fresh-water river enters the head of the estuary of the same name, the water was at this time hardly more than medium brackish.

One of these sturgeons was 17 inches long over all and had 10 dorsal plates, 27 lateral, and 11 ventral ones. The other was 17¾ inches long and its plates were, dorsal 10, lateral 28, ventral 11. In color both were

gray above, cream below. They are now on deposit in the Beaufort laboratory.

Prior to this there are only 2 records of the taking of this sturgeon in Beaufort waters. In 1877 Yarrow reported its capture in North River some 4 or 5 miles from Beaufort. Smith (1907) in April, 1904, saw three small specimens taken in the ocean at Cape Lookout. However, Mr. Coles informs me that the young are very common at Cape Lookout where they are taken in sink nets in March or early April in such numbers as to be at times unsaleable. He has seen the beach there covered with those that had been thrown away. Jordan (1886) reports the occurrence also of the sharp-nosed sturgeon *A. brevirostrum* in Beaufort waters.

The long-nosed sturgeon reaches a large size in our Sounds. In the summer of 1906 I examined at Hatteras the skins of 2 specimens which were reported by Dr. Davis, at whose fish wharf they were lying, to have been 9 and 11 feet long respectively. They were taken in Pamlico Sound.

Lepisosteus osseus (Linnæus).

GAR PIKE; LONG-NOSED GAR; "SHELL GAR."

I have previously (1910, 1912*a*) noted the prevalence of gars at the head of the estuary of Newport River. This season they were more abundant than ever, very greatly to the annoyance of the fishermen. Their occurrence in such numbers is probably to be explained on the ground that the water was almost fresh, due to the excessively heavy rainfall of the preceding weeks. Although the fish were in prime condition, neither milt nor spawn could be obtained by vigorous pressure.

TELEOSTEI.

Felichthys felis (Linnæus).

GAFF-TOPSAIL CAT-FISH.

In 6 seasons' seining for these cat-fish in Newport River they have never been found so scarce as in the last days of May, 1912. This is probably due to the extraordinarily heavy rainfall which immediately preceded my visit to Beaufort. The total rainfall from May 6–22 inclusive was 7.51 inches; the precipitation being 1.17 inches on May 6, 2.09 inches on 12, 1.74 on 13, and 1.31 on May 22, the day of my arrival. This so freshened the head of the estuary that the cat-fish were scattered over the wide reaches of the lower and more salt river. Confirmatory of this conclusion was the report of some of the menhaden fishermen that unusual numbers of cat-fish were taken in their seines outside. A female caught at the Narrows on May 23 had a large number of empty follicles in her ovary showing that oviposition had already begun.

Eel—species unknown.

It may not be amiss to note that an unidentified male eel, taken at the Narrows of Newport River on May 24, had a greatly enlarged testis extending forward through the whole length of the abdomen to the anterior end of the stomach.

Tarpon atlanticus (Cuvier & Valenciennes).
TARPON; "SILVER FISH."

Tarpon, while recorded from Beaufort, are sparingly taken. So far as I know, since 1902 no tarpons have been seen or any captures made until during the past year. In September, 1911, a specimen 52 inches long and weighing 60 pounds was taken in a seine in the channel between Fort Macon and the outer edge of Bird Shoal. A photograph of this fish, made by Mr. A. D. Dart of Beaufort, is now in my possession. On the day following the capture of the above, another about the same size was hooked outside the Inlet but broke away.

On May 24, at Lawton's Rock at the head of Newport estuary, we took a young specimen in a seine. The fish seemed to be known to my head fisherman, for, long before it became visible, he remarked that the big fish, striking the bunt of the seine so hard and threatening to tear its way out, was a silver fish. This specimen was 38½ inches long over all, 31½ to the base of the caudal, and its depth was 7½ inches. The head was 7¾ inches long, the diameter of the eye 1⅛ inches, and the long dorsal ray was 8 inches in length. It is interesting to note that the dorsal fin had 11 rays instead the 12 normally present. Its weight was 14½ pounds. When dissected it was found to have a very long air bladder, on the dorsal and ventral surfaces of the inner lining of which were found elongated bands of deep red vascular tissue, very lung-like in appearance, cellular and spongy, recalling vividly the figures of the air bladder of *Ceratodus*.

In size this 38½-inch fish was a mere baby. In July, 1906, at Hatteras, I saw a 5-foot specimen taken in a pound-net in Pamlico Sound. The largest recorded from the coast of North Carolina was taken near Wilmington. It weighed 176 pounds, but this is not the limit by any means. According to C. F. Holder (1903), the undisputed authority on the big game fishes of the United States—and the tarpon is *par excellence* the greatest game fish on the Atlantic and Gulf coasts, taking the place there of the tuna in California—the largest tarpon ever taken with rod and reel in the waters of the United States weighed 213 pounds and measured 7 feet 2 inches in length and 46 inches in girth. It was captured at Bahia Honda, Florida Keys, in 1901. In the same year a tarpon was taken at Aransas Pass, Texas, 7 feet 10 inches long and having a girth of 46 inches. Unfortunately this fish was not weighed but, according to the formula that the square of the girth in inches multiplied by the length in inches divided by 800 equals the weight in pounds, it was estimated by Holder at 233 pounds. These however are not maximum fish, for a specimen of 383 pounds has been grained according to Evermann, and Holder is convinced that not even this is the limit.

Smith (1907) tells us that the tarpon is not uncommon at Cape Lookout in May, but that it is rarely caught since it breaks through the nets. Coles took an 83-pound specimen there in the summer of 1912. He reports that tarpon are by no means rare there, that he has seen them in great numbers, and that he has gotten a net around them a number of times. However the above specimen is the only one he has ever caught since they are so strong that they either go through the net or leap over the cork line.

Scomberomorus cavalla (Cuvier.)

CERO; KING-FISH.

Since the passage of a law forbidding the use of mile-long seines in the bight of Cape Lookout, the cero has not cut much figure as an export food fish, being taken sparingly in the smaller seines or by trolling. Hence it was that the following press dispatch caught my attention.

"Morehead City.—Record-breaking catches of fish are being made here daily * * *. F. G. Willis caught 65 cero and king mackerel weighing 1200 pounds and Willis Fulcher caught 66 weighing 1200 pounds. By 7 o'clock that evening there was on the floor at Wallace's fish house over 5,000 pounds of cero, caught with hook and line by 4 people. This is the largest day's catch of this variety of fish ever made here."

In order to ascertain the correctness of this item I sent it to my friend, W. M. Webb, Esq., of Morehead City, who as it turns out is one of the 4 men referred to and who vouches for the accuracy of the statements. In addition Mr. Webb kindly communicated further the following interesting account.

"This is the first season we have ever fished exclusively for cero and I was in a party of 4 that made the first catch of 51 which weighed 1,168 pounds. For several days after this the sea was rough and we could not get out, but about a week afterwards, when every one thought the cero had gone south, I went out and caught 19 Friday, Oct. 25, 17 Saturday, 47 Monday, 66 Tuesday, 20 Wednesday, and 10 Thursday (about 3 hours in the afternoon). All were caught trolling, using whole mullet for bait. I am quite sure that we can get the cero fishing almost any day from about the middle of July up to November 1."

Auxis thazard (Lacepede).

FRIGATE MACKEREL.

Seriola carolinensis Holbrook

RUDDER-FISH; SHARK PILOT.

Seriola lalandi Cuvier & Valenciennes.

AMBER-FISH; YELLOW TAIL.

Caranx bartholomæi Cuvier & Valenciennes.

YELLOW JACK

Chloroscombrus chrysurus (Linnæus).

BUMPER.

It is interesting to note that Coles reports these fishes, for which there are very few Beaufort records, as being not uncommon at Cape Lookout. He took a number of specimens of each in 1912.

Decapterus punctatus (Linnæus).

SCAD; ROUND ROBIN.

This mackerel scad, which reaches a length of 12 inches and which is said by Jordan and Evermann (1896) to range from Cape Cod to Brazil and to be very common on the coast of Florida, has not heretofore been reported

from our waters. Concerning it Mr. Coles writes: In 1912, I secured my first specimen of this fish (8 inches long) from Cape Lookout and presented it to the American Museum." This is the fifteenth species which Mr. Coles has added to the fish fauna of North Carolina.

Rachycentron canadus (Linnæus).

CABIO; CRAB-EATER.

The record cabio for Beaufort and for the coast of North Carolina was taken by Mr. Dan Fowle while fishing in the ocean between Beaufort Inlet and Cape Lookout in October, 1911. It was 61 inches long and weighed 70 pounds. Large ones are often taken in seines at Cape Lookout but none so large as this has ever been recorded. I am indebted to Mr. A. D. Dart for a photograph of this fish and for the data above given.

Cynoscion regalis (Bloch & Schneider).

TROUT; SEA TROUT; GRAY TROUT.

Cynoscion nebulosus (Cuvier & Valenciennes).

TROUT; SEA TROUT; SPECKLED TROUT; SALMON TROUT.

These sea trouts are among the most common food fishes at Beaufort, the latter however being the more abundant and valuable. Hence it was that a recent press notice, similar to but more indefinite than the one previously quoted concerning the cero, led me to ask my friend, Captain J. H. Potter, a fish dealer of long standing at Beaufort, for more definite data. This through his kindness is now presented.

The fishing fleet at Beaufort at present comprises 20 to 25 vessels of from 40 to 70 tons displacement each, and it is not an infrequent thing for them to make catches of from 5,000 to 30,000 pounds of fish each several times a week during the height of the fishing season. This winter fishing is best at or near the bar across Beaufort Inlet, and sink or purse nets are used since the fish are found in large schools, each kind to itself. On the days referred to in the press dispatch, the fishermen were fortunate in striking immense schools, and it is estimated that 600,000 pounds were taken. Capt. Potter himself bought 70,000 pounds of gray trout in one lot for which he paid $1,000, while for another and smaller lot he paid $400. Other lots were sold to other dealers for $780, $650, and so on down to the smallest lot, which brought $150.

Of this great catch the spotted trout aggregated about 50,000 pounds and were sold for about $3,000, the price averaging 3 to 4 times higher than the price for gray trout. Capt. Potter says that this is the largest catch of spotted trout he has ever known at Beaufort, since fishing for them is generally by haul nets or they are taken in small quantities in purse seines by the menhaden fishermen while they are feeding on the menhaden.

Balistes carolinensis Gmelin.

TRIGGER-FISH; TURBOT.

The only published record of the occurrence of this trigger-fish in North Carolina is found in Smith's Fishes, where on page 340 it is noted that

one was taken in 1903, and 2 in 1905. At Cape Lookout in July, 1912, Coles had the good fortune to take 3 specimens, the largest of which was a foot long. These are the first and only specimens he has ever taken in his fishing on our coast.

Lactophrys trigonus (Linnæus).

CAMEL-FISH; TRUNK-FISH; BOX-FISH.

This interesting West Indian armor-clad fish has been sparingly taken at Beaufort, and not at all in recent years so far as the records go, hence the following quotation from Mr. Coles is of interest: "I secured my first specimen ($3\frac{1}{4}$ inches long) from Cape Lookout in 1912 and presented it to the American Museum."

Lactophrys tricornis (Linnæus).

COW-FISH.

In another paper (Gudger 1912*b*) record has been made of the addition of this interesting fish to our local fauna by Coles's fortunate catch of 2 small specimens at Cape Lookout in July, 1911. To these he has added another specimen taken at the same place in July, 1912.

Lagocephalus lævigatus (Linnæus).

PUFFER; RABBIT-FISH.

Coles reports that during the summer of 1912 he took at the Cape a number of good-sized specimens of this, our largest puffer. He finds however that, while it is more abundant at Cape Lookout than at Beaufort, it is solitary in habit since he has never found more than one to be taken at a time.

Scorpæna brasiliensis Cuvier & Valenciennes.

SCORPION-FISH.

A large specimen of this fish was taken at Beaufort on August 10, 1911. After being in alcohol until May 29, 1912, it measured $6\frac{1}{8}$ inches over all, and $1\frac{3}{4}$ inches in depth. It is noticeable that its ventral fin had 5 instead of 6 soft rays, the normal number. The only other specimens ever recorded from Beaufort or our coast prior to this were collected by George Bean and myself on Uncle Israel Shoal in Beaufort Harbor, July 20, 1904. They were only about 2 inches long. However in July of this year Coles took at Cape Lookout a specimen which he presented to the United States National Museum, thus adding another record to our scanty list of its captures.

Prionotus evolans (Linnæus).

Prionotus tribulus (Cuvier).

Prionotus scitulus Jordan & Gilbert.

Prionotus carolinus (Linnæus).

FLYING-FISHES; FLYING-TOADS; SEA-ROBINS.

Coles reports that at the Cape in July, 1912, he was able to make a fine collection of sea-robins, as our American gurnards are commonly called.

Among these specimens, which were divided between the United States National Museum and the Museum d'Histoire Naturelle de Paris, were a number of the rare form *P. evolans*, specimens of which Coles also took at Cape Lookout in 1910 and again 1911 (Gudger 1912b).

Cephalacanthus volitans (Linnæus).

FLYING-FISH; FLYING-ROBIN.

Although this flying gurnard seems to have been abundant at Beaufort in the '70s and '80s, of late years it has been extremely rare. In the summer of 1904 I had the good fortune to collect a specimen, and in the following season another was taken by Dr. C. B. Wilson. On August 10, 1912, Coles took near Beaufort Inlet the first and only specimen of this gurnard in his 11 years' fishing on our coast. It is now in the United States National Museum.

Ogcocephalus nasutus (Cuvier & Valenciennes).

BAT-FISH.

Coles has added another fish to the fauna of North Carolina and indeed of the United States by the capture of a specimen of this rare bat-fish. This specimen, which was taken in a purse seine in the open sea between Beaufort Inlet and Cape Lookout, is $5\frac{1}{4}$ inches long. Heretofore it has not been taken north of the West Indies. This is the sixteenth, or if the identification of the cub shark, *Carcharhinus lamia*, be confirmed, the seventeenth, species which Mr. Coles has added to the ichthyological fauna of North Carolina. It is on deposit in the United States National Museum.

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